

WHAT IS CLAIMED:

- 1 1. A method of validating a color in a media environment, the method
2 comprising:
3 receiving a selection of a color in a first color space;
4 mapping component values of the selected color to corresponding color
5 component values in a reference color space;
6 converting the color component values in the reference color space to
7 corresponding color component values in a second color space; and
8 determining the validity of the color component values in the second color
9 space according to an established parameter.
- 1 2. A method according to Claim 1, wherein the first color space is a
2 sRGB color space.
- 1 3. A method according to Claim 1, wherein the first color space is an
2 RGB color space.
- 1 4. A method according to Claim 1, wherein the second color space is
2 an NTSC color space.
- 1 5. A method according to Claim 1, wherein the second color space is a
2 PAL color space.

1 6. A method according to Claim 1, wherein the second color space is a
2 SECAM color space.

1 7. A method according to Claim 1, wherein the first color space is valid
2 for a computer monitor.

1 8. A method according to Claim 1, wherein the second color space is
2 valid for a television monitor.

1 9. A method according to Claim 1, wherein the second color space is
2 valid for a video monitor.

1 10. A method according to Claim 9, wherein the video monitor includes
2 a special purpose video display having a color gamut different than a television monitor.

1 11. A method according to Claim 1, wherein the first color space is one
2 of a NTSC color space, a PAL color space, and a SECAM color space, and the second
3 color space is either of a sRGB color space and an RGB color space.

1 12. A method according to Claim 1, wherein the reference color space
2 includes a CIE XYZ color space.

1 13. A method according to Claim 1, wherein the reference color space is
2 standardized by the International Electrotechnical Commission (IEC).

1 14. A method according to Claim 1, wherein the established parameter
2 includes color component values each within a range of [0,1].

1 15. A method according to Claim 1, wherein choosing a color in a first
2 color space includes normalizing the component values of the chosen color in accordance
3 with the number of bits-per-channel in the first color space.

1 16. A method according to Claim 1, wherein converting the color
2 component values in the reference color space includes converting the color component
3 values in the reference color space to corresponding color component values in a
4 normalized TV color space.

1 17. A computer-accessible medium having one or more instructions that
2 are executable by one or more processors, the one or more instructions causing the one or
3 more processors to:

4 detect a color selected from a color model;
5 correct component values for the selected color;
6 convert the corrected component values to corresponding component values
7 in a fundamental color coordinate system; and
8 convert the component values in the fundamental color coordinate system
9 to corresponding component values in a target color space.

1 18. A computer-accessible medium according to Claim 17, wherein the
2 one or more instructions further include indicating whether the converted component
3 values in the target color space are valid for display.

1 19. A computer-accessible medium according to Claim 17, wherein to
2 correct component values for the selected color is to normalize the component values in
3 accordance with the number of bits-per-channel for the color model.

1 20. A computer-accessible medium according to Claim 18, wherein the
2 component values in the target color space in the range of [0,1] are indicated to be valid
3 for display.

1 21. A computer-accessible medium according to Claim 17, wherein the
2 color model includes a graphical user interface depiction of a two-dimensional (2-D)
3 section of a three-dimensional (3-D) color space, wherein further the 2-D section includes
4 a slice of the 3-D color space based on a current dominant color selection.

1 22. A computer-accessible medium according to Claim 17, wherein the
2 color model references a color gamut for a computer monitor.

1 23. A computer-accessible medium according to Claim 22, wherein the
2 color gamut for a computer monitor corresponds to a sRGB color space.

1 24. A computer-accessible medium according to Claim 22, wherein the
2 color gamut for a computer monitor corresponds to an RGB color space.

1 25. A computer-accessible medium according to Claim 17, wherein the
2 target color space is a PAL color space.

1 26. A computer-accessible medium according to Claim 17, wherein the
2 target color space is an NTSC color space.

1 27. A computer-accessible medium according to Claim 17, wherein the
2 target color space is a SECAM color space.

1 28. A computer-accessible medium according to Claim 17, wherein the
2 target color space corresponds to a specialized video signal format.

1 29. A computer-accessible medium according to Claim 17, wherein the
2 fundamental color coordinate system is a color space standardized by the International
3 Electrotechnical Commission (IEC).

1 30. A computer-accessible medium having one or more instructions that
2 are executable by one or more processors, the one or more instructions causing the one or
3 more processors to:

4 detect a color selected from a graphic user interface (GUI) color palette;

5 normalize component values of the selected color in accordance with the
6 number of bits-per-channel;
7 convert the normalized component values to corresponding component
8 values in a standardized reference color coordinate system; and
9 convert the component values in the standardized reference color
10 coordinate system to corresponding component values in a receiver color coordinate
11 system.

1 31. A computer-accessible medium according to Claim 30, wherein the
2 GUI color palette depicts a plane of a multi-dimensional color space predicated upon a
3 dominant color selection.

1 32. A computer-accessible medium according to Claim 30, wherein the
2 GUI color palette depicts a rotatable 3-D rendering of an X-dimensional ($X \geq 6$) color
3 space predicated upon a dominant color selection.

1 33. A computer-accessible medium according to Claim 30, wherein to
2 normalize the component values of the detected color is to gamma-correct the component
3 values.

1 34. A computer-accessible medium according to Claim 30, wherein to
2 convert the component values in the standardized reference color coordinate system to
3 corresponding component values in the receiver color coordinate system further is to

4 gamma-correct the converted component values in the standardized reference color
5 coordinate system.

1 35. A computer-accessible medium according to Claim 30, wherein the
2 one or more instructions causing the one or more processors to convert the component
3 values in the standardized reference color coordinate system further causes the one or
4 more processors to calculate a minimum average component value if one of the converted
5 component values exceed a range of [0,1].

1 36. A computer-accessible medium according to Claim 30, wherein the
2 one or more instructions causing the one or more processors to convert the component
3 values in the standardized reference color coordinate system further causes the one or
4 more processors to default to a next-closest color component value match if one of the
5 converted component values exceed a range of [0,1].

1 37. A computer-accessible medium according to Claim 36, wherein the
2 next-closest color component value match is determined in accordance with a
3 mathematical projection.

1 38. A computer-accessible medium according to Claim 30, further
2 comprising one or more instructions causing the one or more processors to indicate that
3 the detected color is invalid and request another color be selected from the GUI color
4 palette if one of the converted component values exceed a range of [0,1].

1 39. A computer-accessible medium according to Claim 30, wherein the
2 standardized reference color coordinate system is a CIE XYZ system.

1 40. An apparatus for validating a color picked in a first environment in a
2 second environment, comprising:

3 a user interface to receive a selection of a color associated with a first color
4 space;

5 a normalizer to linearize component values associated with the selected
6 color;

7 a first converter to convert the linear component values from the first color
8 space to component values in a reference color space; and

9 a second converter to convert the component values from the reference
10 color space to component values in a second color space.

1 41. An apparatus according to Claim 40, wherein the user interface
2 includes a planar depiction of a 3-D color space based on a current dominant color
3 selection.

1 42. An apparatus according to Claim 40, wherein the user interface
2 includes a color model presenting a rotatable 3-D rendering of an X-dimensional ($X \geq 6$)
3 color space predicated upon a dominant color selection.

1 43. An apparatus according to Claim 40, wherein the normalizer is to
2 convert the component values associated with the selected color to floating point non-

3 linear values and gamma-correct the non-linear values, all in accordance with a number
4 of bits per channel associated with the first color space.

1 44. An apparatus according to Claim 40, wherein the first converter is to
2 map the linear component values associated with the color to component values in a
3 reference color space.

1 45. An apparatus according to Claim 44, wherein the reference color
2 space includes an IEC 61966-2 color space.

1 46. An apparatus according to Claim 44, wherein the reference color
2 space is standardized by the International Electrotechnical Commission (IEC).

1 47. An apparatus according to Claim 40, wherein the second converter is
2 to convert the component values from the reference color space to component values in a
3 color space corresponding to a video standard.

1 48. An apparatus according to claim 40, wherein the first color space
2 includes one of a sRGB and an RGB color space.

1 49. An apparatus according to Claim 40, wherein the second color space
2 includes any one of an NTSC, a PAL, and a SECAM color space.

1 50. An apparatus according to Claim 40, wherein the second color space
2 includes a color space for video monitors having different gamut limits than television
3 monitors.

1 51. An apparatus according to Claim 50, wherein the video monitors
2 having different gamut limits than television monitors includes either of aviation or
3 maritime cockpit displays.

1 52. An apparatus according to Claim 40, wherein component values
2 converted from the reference color space to the second color space within the range of
3 [0,1] are valid for display in the second environment.

1 53. An apparatus according to Claim 53, wherein, when the converted
2 component values in the second color space are within the range of [0,1], the user
3 interface simulates a color corresponding to the converted component values in the
4 second color space.

1 54. An apparatus for validating a color picked in a first environment in a
2 second environment, comprising:

3 means for receiving a selection of a color associated with a first color
4 space;

5 means for linearizing component values associated with the selected color;

6 means for converting the linear component values from the first color space
7 to component values in a reference color space; and

- 8 means for converting the component values from the reference color space
- 9 to component values in a second color space.